

Claims

- [illegible]

3. Nucleic acid molecule according to Claim 1, **characterized in that** the nucleic acid indicated under (c) exhibits at least 80% identity with one of the sequences indicated in (a) or (b), or the complementary sequence thereof.
4. Nucleic acid molecule according to Claim 1, **characterized in that** the nucleic acid indicated under (c) exhibits at least 90% identity with one of the sequences indicated in (a) or (b), or the complementary sequence thereof.
5. Nucleic acid molecule according to Claim 1, **characterized in that** the nucleic acid indicated under (c) exhibits at least 95% identity with one of the sequences indicated in (a) or (b), or the complementary sequence thereof.
6. Nucleic acid molecule according to one of the preceding claims, **characterized in that** it exhibits at least one heat shock element having the sequence NGAANNNNNNNGAAN (SEQ ID NO:2) or the complementary sequence thereof, wherein the nucleotides denoted by N may be A, T, C or G independent of each other.
7. Nucleic acid molecule according to claim 6, **characterized in that** it exhibits at least one heat shock element with the sequence NGAANNBWMNNGAAN (SEQ ID NO:3) or the complementary sequence thereof, wherein B is a G, C or T, W an A or T, and M a C or A.
8. Nucleic acid molecule according to Claim 7, **characterized in that** the heat shock element is selected from TGAAGCCTCTTGAAA (SEQ ID NO:4) and/or TGAATATAAAGGAAA (SEQ ID NO:5) and/or the complementary sequences thereof, wherein two or more heat shock elements, where present, may exhibit the same or different sequences.
9. Nucleic acid molecule according to claims 6, 7 or 8, **characterized in that** it exhibits at least two different heat shock elements.

10. Nucleic acid molecule according to one of the preceding claims, **characterized in that** it contains no STRE element having the sequence CCCCT or AGGGG.
11. Nucleic acid molecule according to Claim 1, **characterized in that** the fragment indicated under (f) comprises the sequence from nucleotide 228 to nucleotide 792 in SEQ ID NO:1.
12. Nucleic acid molecule according to Claim 1, **characterized in that** the fragment indicated under (f) comprises the sequence from nucleotide 492 to nucleotide 792 in SEQ ID NO:1.
13. Nucleic acid molecule according to Claim 1, **characterized in that** the fragment indicated under (f) comprises the sequence from nucleotide 627 to nucleotide 713 in SEQ ID NO:1.
14. Nucleic acid molecule according to one of the preceding claims, **characterized in that** it further comprises at least one nucleic acid sequence for a heterologous gene under the transcriptional control of the heat-inducible promoter .
15. Nucleic acid molecule according to one of Claims 1 to 13, **characterized in that** it further comprises a nucleic acid sequence under the transcriptional control of the heat-inducible promoter which is selected from the following sequences:
- (i) a nucleic acid sequence which encodes a polypeptide with the amino acid sequence of the trehalose-6-phosphate synthase of *Hansenula polymorpha*;
 - (ii) a nucleic acid sequence as indicated in SEQ ID NO:6;
 - (iii) a nucleic acid sequence which exhibits at least 80% identity with the sequence indicated in SEQ ID NO:6;
 - (iv) a nucleic acid sequence which encodes a polypeptide with the amino acid sequence indicated in SEQ ID NO:7 or with a partial sequence thereof, wherein the polypeptide exhibits trehalose-6-phosphate synthase activity;

- (v) a nucleic acid sequence which in consideration of the degeneration of the genetic code would encode a polypeptide with the amino acid sequence indicated in SEQ ID NO:7 or with a partial sequence thereof, wherein the polypeptide exhibits trehalose-6-phosphate synthase activity;
- (vi) a nucleic acid sequence which encodes a polypeptide the amino acid sequence of which exhibits at least 80% identity with the amino acid sequence indicated in SEQ ID NO:7.
16. Nucleic acid molecule according to Claim 15, **characterized in that** the nucleic acid sequence indicated under (iii) exhibits at least 90% identity with the sequence indicated in SEQ ID NO:6.
17. Nucleic acid molecule according to Claim 15, **characterized in that** the nucleic acid sequence indicated under (vi) encodes a polypeptide the amino acid sequence of which exhibits at least 90% identity with the amino acid sequence indicated in SEQ ID NO:7.
18. Host cell containing a nucleic acid molecule according to one of Claims 1 to 17, wherein the host cell is a prokaryotic or eukaryotic cell.
19. Host cell according to Claim 18, **characterized in that** the eukaryotic cell is a fungal cell.
20. Host cell according to Claim 19, **characterized in that** the fungal cell is a yeast cell.
21. Host cell according to Claim 20, **characterized in that** the yeast cell is *Hansenula polymorpha*.
22. Expression vector comprising at least one nucleic acid molecule according to one of Claims 1 to 13.

23. Expression vector comprising at least one nucleic acid molecule according to one of Claims 14 to 17.
24. Kit, comprising:
- (a) an expression vector according to Claim 22, which is suitable for having cloned into it a nucleic acid which encodes a recombinant protein, and
 - (b) a host cell suitable for induction of the heat-inducible promoter and for production of the recombinant protein.
25. Kit, comprising:
- (a) an expression vector according to Claim 23 and
 - (b) a host cell which is suitable for induction of the heat-inducible promoter and for production of a protein encoded by a coding sequence under the transcriptional control of the heat-inducible promoter.
26. Use of a nucleic acid molecule according to one of Claims 1 to 17 or of a host cell according to one of Claims 18 to 21 or of an expression vector according to Claims 22 or 23 or of a kit according to Claim 24 or 25 for expression of a gene under the control of the heat-inducible promoter.
27. Use of a nucleic acid molecule according to one of Claims 1 to 17 or of a host cell according to one of Claims 18 to 21 or of an expression vector according to Claims 22 or 23 or of a kit according to Claim 24 or 25 for the production of one or more proteins.
28. Method for the production of one or more proteins, comprising
- (i) Cloning of at least one nucleic acid which encodes a recombinant protein into an expression vector according to Claim 22, such that the nucleic acid thus cloned is under the transcriptional control of the heat-inducible promoter;

- (ii) introduction of the expression vector obtained in (i) into a host cell suitable for induction of the heat-inducible promoter and for production of the recombinant protein;
- (iii) cultivation of the host cell obtained in (ii);
- (iv) induction of the heat-inducible promoter by methods known per se.

29. Method for the production of one or more proteins, comprising

- (i) introduction of an expression vector according to Claim 23 into a host cell suitable for induction of the heat-inducible promoter and for production of the recombinant protein;
- (ii) cultivation of the host cell obtained in (i);
- (iii) induction of the heat-inducible promoter by methods known per se.

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